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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN S. WORLEY

Appeal 2009-002812
Application 10/659,837[1]
Technology Center 2100

Decided: March 12, 2010

Before JAY P. LUCAS, JOHN A. JEFFERY, and
CAROLYN D. THOMAS, *Administrative Patent Judges.*

THOMAS, *Administrative Patent Judge.*

DECISION ON APPEAL

[1] Application filed September 10, 2003. The real party in interest is Hewlett-Packard Development Company, LP.

I. STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1-19, which are all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

A. INVENTION

Appellant invented a high performance, multiple-precision multiply-and-add operation that takes advantage of native *multiply-and-add* instructions. (Spec. 4:6-8.)

B. ILLUSTRATIVE CLAIM

The appeal contains claims 1-19. Claims 1, 10, and 19 are independent claims. Claims 1 and 10 are illustrative:

> 1. A multiple-precision, multiply-and-add computer operation for multiplying together a first operand with a second operand, at least one of the first and second operands having more than one natural word, and then adding an addend operand to the product of the first and second operands to produce a final result that is written into a multiple-natural-word-containing result vector, the multiple-precision, multiply-and-add operation comprising:
>
> the first operand;
>
> the second operand;
>
> the addend operand;
>
> the result vector; and
>
> for each natural word of the second operand,
>
> a block of *multiply-and-add* instructions that multiply the natural word of the second operand by all natural words of the first operand and store results of the multiply-and-add

instructions as intermediate results, the block of *multiply-and-add* instructions that multiply the first natural word of the second operand by all natural words of the first operand additionally adding a number of initial natural words of the addend operand to the products of the first natural word of the second operand and all natural words of the first operand, the block of *multiply-and-add* instructions containing no write dependencies.

10. A method, carried out by a computer, for multiplying a first operand by a second operand to produce an intermediate product to which an addend operand is added to produce a result stored in a result vector, at least one of the first operand, second operand, and addend operand having more than one natural word, the method comprising:

for each natural word of the second operand,

using a block of *multiply-and-add* instructions to multiply the natural word of the second operand by all natural words of the first operand and store results of the *multiply-and-add* instructions as intermediate results, when multiplying the first natural word of the second operand by all natural words of the first operand additionally adding a number of initial natural words of the addend operand to the products of the first natural word of the second operand and all natural words of the first operand, the block of *multiply-and-add* instructions containing no write dependencies.

C. REJECTION

The Examiner entered the following rejection which is before us for review:

Claims 1-19 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

II. PRINCIPLES OF LAW

The Court of Appeals for the Federal Circuit's *In re Bilski* decision clarified the bounds of patent-eligible subject matter for process claims. *See In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc). The *en banc Bilski* court held that "the machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101." *Id.* at 956. The *Bilski* court further held that "the 'useful, concrete and tangible result' inquiry is inadequate [to determine whether a claim is patent-eligible under § 101.]" *Id.* at 959-60.

> [T]he proper inquiry under § 101 is not whether the process claim recites sufficient "physical steps," but rather whether the claim meets the machine-or transformation test. As a result, even a claim that recites "physical steps" but neither recites a particular machine or apparatus, nor transforms any article into a different state or thing, is not drawn to patent-eligible subject matter. Conversely, a claim that purportedly lacks any "physical steps" but is still tied to a machine or achieves an eligible transformation passes muster under § 101. *Bilski,* 545 F.3d at 961.

The *Bilski* court, following Supreme Court precedent,[2] enunciates the

[2] The *Bilski* court, citing numerous Supreme Court precedents, stated: "The Supreme Court … has enunciated a definitive test to determine whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself. A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing." *See* [*Gottschalk v. Benson*, 409 U.S. [63,] 70 [(CCPA 1972)] ("Transformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines."); [*Diamond v. Diehr*], 450 U.S. [175,] at 192 [(1981)] (holding that use of mathematical formula in process "transforming or reducing an article to a different state or thing" constitutes patent-eligible subject matter); *see also* [*Parker v. Flook*], 437 U.S. [584,] 589 n.9 ("An argument can be made [that the Supreme]

machine-or-transformation test as follows: "A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing." *Id.* at 954.

Nominal recitations of structure in a method claim do not convert an otherwise ineligible claim into an eligible one. *Bilski*, 545 F.3d at 957. *See also Benson*, 409 U.S. at 68-69 (comparing *O'Reilly v. Morse*, 56 U.S. (15 How.) 62 (1854), to *The Telephone Cases*, 126 U.S. 1 (1888) - the Court explained that Morse's eighth claim was disallowed because it failed to recite any machinery, however, Bell's claim was patentable because it recited specified conditions for using a particular circuit; *In re Schrader*, 22 F.3d 290, 294 (Fed. Cir. 1994) (holding a simple recordation step in the middle of the claimed process incapable of imparting patent-eligibility under § 101); *In re Grams*, 888 F.2d at 839-40 (holding a pre-solution step of gathering data incapable of imparting patent-eligibility under § 101).

Turning to the "transformation" branch of the "machine-or transformation" test, claims reciting incidental transformations or extra-solution activity also do not convert an otherwise ineligible claim into an eligible one. To permit such a practice would exalt form over substance and permit artful claim drafting to circumvent the limitations contemplated by

Court has only recognized a process as within the statutory definition when it either was tied to a particular apparatus or operated to change materials to a 'different state or thing'"); *Cochrane v. Deener*, 94 U.S. 780, 788 (1876) ("A process is … an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing."). *Bilski*, at 954. *See Diamond v. Diehr*, 450 U.S. 175 (1981); *Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63 (1972); *Cochrane v. Deener*, 94 U.S. 780 (1876).

section 101. *See Diehr*, 450 U.S. at 191-92 ("insignificant post-solution activity will not transform an unpatentable principle into a patentable process.").

III. ANALYSIS

Non-Statutory Subject Matter Rejection

We now consider the Examiner's rejection of the claims under 35 U.S.C. § 101.

Appellant contends that "[t]he thrust of the rejection appears to be that the Examiner does not regard computer programs as patentable subject matter. Appellant's representative knows of no *per se* prohibition with regard to the patenting of software." (App. Br. 6-7.) Appellant further contends that "[w]hether the multiple-precision, multiply-and-add instruction is implemented exclusively in software, in a combination of software or hardware, exclusively in hardware, or in a combination of firmware and hardware appears to be quite immaterial to its patentability under 35 U.S.C. § 101, case law, and the Guidelines." (App. Br. 9.)

Appellant also contends that "storing the result of multiply-and-add instruction within a computer system necessarily involves a transformation of the memory and/or registers used to contain the result of the multiply-and-add instruction. If there is no physical transformation, then the result of multiply-and-add instructions cannot be stored." (App. Br. 10.)

The Examiner found that claims 1-19 "merely perform calculations and manipulations of data. In order for such a claimed invention that merely performs calculations and manipulations of data to be statutory, the claimed invention must accomplish a practical application." (Ans. 3.) The Examiner further found that "[a] computer program or data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because that are not capable of causing functional change in the computer." (Ans. 4.)

Issue: Has Appellant shown that the Examiner erred in finding that claims 1-19 include non-statutory subject matter?

Software per se Argument

Appellant initially contends that there is no "software per se" prohibition with regard to the patenting of software. (App. Br. 6-7.) As such, representative claim 1 is *admittedly* encompassing software per se. For example, claim 1 recites a *"computer operation for multiplying together a first operand with a second operand"* and *"a block of multiply-and-add instructions."* However, the software or instructions as claimed are not limited to residing in a tangible, computer-readable memory. Therefore, we agree with the Examiner's interpretation that representative claim 1 is directed to *software per se.*

We have held that *software per se* or a computer program per se does not fall within a statutory class. "The four categories [of § 101] together describe the exclusive reach of patentable subject matter. If a claim covers material not found in any of the four statutory categories, that claim falls outside the plainly expressed scope of § 101 even if the subject matter is otherwise new and useful." *In re Nuijten,* 500 F.3d 1346, 1354 (Fed. Cir. 2007). *See also* MPEP § 2106.01, heading I ("USPTO personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, as nonstatutory functional descriptive material.").

Because independent claims 1 and 19 are admittedly directed to *software per se*, which is not within any § 101 statutory category, we are not persuaded of error in the Examiner's rejection of independent claims 1 and 19.

Machine-or -Transformation test

Machine

Appellant also contends that "storing the result . . . within a computer system necessarily involves a transformation of the memory and/or registers used to contain the result." (App. Br. 10.) In addressing this argument, the Examiner applies a practical application test and the useful, concrete and tangible result test (Ans. 3-4.) We start by noting that "the machine-or-transformation test," as noted *supra,* is the governing test for determining patent eligibility of a process under § 101. The "useful, concrete and tangible result" inquiry is now inadequate to determine whether a claim is patent-eligible under § 101.

Regarding the "machine" part of the test, we note that although the claims recite either a "computer operation" (claims 1 and 19) or "carried out by a computer" (claim 10), we find that such recitations are merely nominal recitations of structure. The claimed "carried out by a computer" or "computer operation" are so generic here as to encompass any program and any computing system, such that anyone who performed this method in practice would fall within the scope of these claims. In such case, the recitation of a computer operation is not, in fact, a limitation at all to the scope of the claim, and the claim is directed, in essence, to the method performed by any means. As such, we fail to find that these recitations require the method in claims 1, 10, and 19 to include a particular machine such that the method qualifies as a "process" under § 101. We will not allow such nominal recitations to convert otherwise ineligible claims into eligible ones. As such, we find that claims 1-19 fail to include a particular machine such that the method qualifies as a "process" under § 101.

Transformation

In addition, Appellant contends that "storing the result of multiply-and-add instruction within a computer system necessarily involves a transformation of the memory and/or registers used to contain the result of the multiply-and-add instruction." However, we start by noting that Appellant's arguments are not commensurate with the actual scope of the claims. For example, independent claims 1, 10, and 19 do not recite any storing in memory and/or registers. Instead, the independent claims merely recite "store results . . . as intermediate results." As such, no particular storing format is specified in claims 1, 10, and 19. Also, dependent claims 5-8 and 14-17 merely recite either "contained within two or more registers" or "contained within two or more natural words in memory." However, the claimed "contained within . . ." does not positively recite any relationship to the "store results" step. Thus, we find that any means for storing, including a mental storage, can be used because no particular structure is specified in the claims for storing the results. As such, we find that the claims fail to include a particular machine such that the method qualifies as a "process" under § 101.

As for the transformation argument, given that we do not find any structure in the claims, it goes to follow that there is no transformation of a structure.

Furthermore, transforming data, i.e., an intangible mathematical expression, is far different from the transformation of subject matter as contemplated by the Supreme Court cases, because here Appellant's representative claim 1 calls only for solving a mathematical expression.

While Appellant's claim 1 may yield a beneficial result, a proper section 101 analysis is not driven solely by usefulness. Here we do *not* have a transformation of subject matter but merely an abstract mathematical expression that is created by a block of multiply-and-add instructions. However, the result does not require any tangible output into the real world. And even if it did, it may be insignificant extra-solution activity as noted by *Bilski.* These steps describe nothing more than the manipulation of basic mathematical constructs, the paradigmatic "abstract idea." *See In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994). As a whole, the claim involves no more than the manipulation of abstract ideas. *See id.*

In other words, the steps of claim 1 do not transform physical subject matter to another state or thing. Instead, we are merely looking at transforming one mathematical representation into another mathematical representation.

Accordingly, we hold that claim 1 is directed to non-statutory subject matter and is unpatentable under 35 U.S.C. § 101. For similar reasons, claims 2-19 fall with claim 1.

Thus, Appellant has *not* persuaded us of error in the Examiner's conclusion of non-statutory subject matter for representative claim 1. Therefore, we affirm the Examiner's § 101 rejection of independent claim 1 and of claims 2-19, which fall therewith.

V. CONCLUSIONS

We conclude that Appellant has *not* shown that the Examiner erred in rejecting claims 1-19.

Thus, claims 1-19 are not patentable.

VI. DECISION

In view of the foregoing discussion, we affirm the Examiner's rejection of claims 1-19.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2009).

<u>AFFIRMED</u>

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